



Gummy Bear Chemistry

SUPPLIES

- Gummy Bears (Black Forest work best)
- 1 cup of water
- 1 cup of salt water
- 1 cup of vinegar
- 1 cup of water with baking soda
- 1 cup of sugar water

EXPERIMENT INSTRUCTIONS

1. Fill 4 cups with water at room temperature.
2. Leave one cup with just water.
3. Stir in one tablespoon of salt in another glass.
4. Stir in one tablespoon of baking soda in another glass.
5. Stir in one tablespoon of sugar into another glass.
6. Add vinegar to the last cup.
7. Measure the mass, length, width and note the color of each gummy bear. Record this data in the chart.
8. Place one gummy bear in each cup. Wait 12-48 hours. Now, record your observations.

SCIENCE BEHIND GROWING GUMMY BEARS

Gummy Bears are made of a protein substance called gelatin, which gives candy a jelly-like texture. When gelatin is heated then cooled, gelatin becomes a solid as the protein chains form a pattern that looks like a sponge under the microscope. This structure makes the Gummy Bears semi-permeable, which means water and other small molecules can diffuse through the solid.

When the Gummy Bears are placed in water, the water molecules move into the pores because there are fewer water molecules in the gelatin than in the water. Think of the movement of molecules from a high concentration to a low concentration as a balance. This process is called osmosis. Osmosis also explains why the Gummy Bears grew larger in the water.

In the salt water, water moved in the opposite direction. There were more salt molecules in the water than in the Gummy Bear, which caused water to move out of the Gummy Bear and into the salt water solution. This explains why the Gummy Bear shrunk.

Gummy Bear in Water

	Mass	Length	Width	Color
Before				
After				

Gummy Bear in Salt Water

	Mass	Length	Width	Color
Before				
After				

Gummy Bear in Vinegar

	Mass	Length	Width	Color
Before				
After				

Gummy Bear in Baking Soda

	Mass	Length	Width	Color
Before				
After				

Gummy Bear in Sugar Water

	Mass	Length	Width	Color
Before				
After				